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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I  
1 CONGRESS STREET, SUITE 1100  
BOSTON, MASSACHUSETTS 02114-2023

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

MAY 15 2008

Mr. William Van Schalkwyk  
Managing Director, Environmental Health & Safety  
Massachusetts Institute of Technology  
77 Massachusetts Avenue  
Cambridge, Massachusetts 02139-4307

Re: Westgate Housing Facility PCB Risk-Based Cleanup and Disposal Approval under  
40 CFR §§ 761.61(c), 761.62, and 761.79(h)

Dear Mr. Van Schalkwyk:

This is in response to the Massachusetts Institute of Technology (MIT) Application<sup>1</sup> for approval of a proposed PCB cleanup at the W85 Westgate Housing Facility (Westgate complex) located at the MIT campus, Cambridge, Massachusetts. Buildings in the Westgate complex contain PCB-contaminated materials that exceed the allowable PCB levels under the federal PCB regulations at 40 CFR § 761.20(a) and § 761.61. Specifically, samples collected from caulk, concrete, and brick have identified PCB contamination at greater than (>) 1 part per million (ppm). PCBs have also been identified in soils located around/adjacent to the Westgate complex buildings.

During November 2007 and December 2007, MIT conducted a limited abatement project to evaluate PCB abatement and decontamination methods in section A of the ABC Building. This work was conducted under the *November 2, 2007 Limited Alternative Decontamination Approval under 40 CFR §§ 761.61(a), 761.61(c), 761.62, and 761.79(h)*. Although this limited abatement project showed that the abatement methods could be implemented and meet the PCB cleanup standards for most surfaces, the abatement methods caused significant noise, vibration and disruption for building occupants. For those surfaces which could not be decontaminated, it is likely that the PCB cleanup standard of 1 ppm would not be achieved without removal of the PCB-impacted materials, potentially resulting in building structural concerns as well as interior dust issues.

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<sup>1</sup> The decontamination plan was prepared by Woodard & Curran on your behalf to satisfy the requirements under 40 CFR §§ 761.61(c), 761.62, and 761.79(h). Information was received dated February 27, 2008 (with attached Remediation Plan dated February 2008) and May 9 and 12, 2008 (via e-mail). These submittals will be referred to as the "Application", which also includes previously submitted documents dated October 2, 2007; October 19, 2007 (via e-mail); and October 30, 2007 (via e-mail).

As a result of the limited abatement project findings, MIT is proposing a risk-based plan to address PCB-contaminated caulk and building materials at the four 3-story low-rise buildings. MIT has proposed a cleanup plan under the PCB risk-based cleanup and disposal option at 40 CFR § 761.61(c), § 761.62, and § 761.79(h) that includes the following major activities:

- Removal and disposal of PCB caulk, PCB-impacted caulk, and backer rods (if present) and replacement with new caulk;
- Decontamination of horizontal PCB-contaminated *porous surfaces* (balconies) using a chemical wash to achieve a PCB cleanup standard of 1 ppm. If post-abatement confirmatory sampling indicates an exceedence of the 1 ppm PCB cleanup standard, a sealant will be applied and a wooden decking will be constructed over the area;
- Encapsulation of PCB-contaminated building *porous surfaces* (i.e. concrete and brick), with the exception of the balconies, with an epoxy-based sealant and/or a metal barrier;
- Decontamination of *non-porous surfaces* (i.e. metal frames) to less than or equal to ( $\leq$ ) 10  $\mu\text{g}/100\text{ cm}^2$  PCBs;
- Removal and off-site disposal of PCB-contaminated soils, asphalt, and (non-building) concrete at greater than ( $>$ ) 1 ppm;
- Disposal of all wastes in a TSCA-approved disposal facility in accordance with § 761.61(b) and § 761.62; and,
- Establishment of a long-term monitoring and maintenance plan for the encapsulant and/or the metal barriers.

Based on the EPA's review, the information provided in the Application meets the requirements under § 761.62(a) and § 761.79(h) for abatement of PCB caulk. EPA also finds that following removal of the PCB caulk, the proposed encapsulation of PCB-contaminated *porous surfaces* should effectively prevent direct exposure of these PCB-contaminated *porous surfaces* to building users and building occupants provided the sealant is maintained. As such, EPA may approve this remedy under § 761.61(c).

MIT may proceed with its project in accordance with 40 CFR § 761.61(c); § 761.62; § 761.79(h); its Application; and, this Approval, subject to the conditions of Attachment 1. Under this Approval, EPA is reserving its right to require additional investigation or mitigation measures should the results of the long-term monitoring sampling indicate an unreasonable risk to building occupants and/or building users.

Questions and correspondence on this Approval should be directed to:

Kimberly N. Tisa, PCB Coordinator  
United States Environmental Protection Agency  
1 Congress Street, Suite 1100 - CPT  
Boston, Massachusetts 02114-2023  
Telephone: (617) 918-1527  
Facsimile: (617) 918-0527

EPA shall not consider the work authorized under this Approval to be complete until it has received all submittals required under this Approval.

Sincerely,

A handwritten signature in black ink, appearing to read "R. W. Varney", followed by a long horizontal flourish that ends in a loop.

Robert W. Varney  
Regional Administrator

cc J. Hamel, Woodard & Curran  
M. Milette, EPA  
MADEP, Boston  
File

Attachment 1



**ATTACHMENT 1:      PCB RISK-BASED CLEANUP AND DISPOSAL APPROVAL  
CONDITIONS**  
**MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)**  
**WESTGATE HOUSING FACILITY COMPLEX**  
**CAMBRIDGE, MASSACHUSETTS**

**GENERAL CONDITIONS**

1. This Approval is granted under the authority of Section 6(e) of the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2605(e), and the PCB regulations at 40 CFR Part 761, and applies solely to *PCB remediation waste and PCB Bulk Product Waste* identified in the Application and located at the Site, specifically the four 3-story low rise buildings, asphalt and/or (non-building) concrete, and soils. The 3-story low-rise buildings include the following locations:

- W85 ABC: 11 - 13 - 15 Audrey Street
- W85 DE: 290 - 292 Vassar Street
- W85 FG: 284 - 286 Vassar Street
- W85 HJK: 278 - 280 - 282 Vassar Street

MIT will be required to submit a separate plan to address the 16-story high rise in the event PCBs regulated for cleanup and disposal under 40 CFR Part 761 are identified.

2. MIT shall conduct on-site activities in accordance with the conditions of this Approval and the Application.
3. This Approval may be revoked if the EPA does not receive written notification from MIT of its acceptance of the conditions of this Approval within ten (10) business days of receipt.
4. In the event that the activities described in the Application differ from the conditions specified in this Approval, the conditions of this Approval shall govern.
5. The terms and abbreviations used herein shall have the meanings as defined in 40 CFR § 761.3 unless otherwise defined within this Approval.
6. MIT must comply with all applicable federal, state and local regulations in the storage, handling, and disposal of all PCB wastes, including PCBs, PCB Items and decontamination wastes generated under this Approval. In the event of a new spill during response actions, MIT shall contact EPA within twenty-four (24) hours for direction on sampling and cleanup requirements.

7. MIT is responsible for the actions of all officers, employees, agents, contractors, subcontractors, and others who are involved in activities conducted under this Approval. If at any time MIT has or receives information indicating that MIT or any other person has failed, or may have failed, to comply with any provision of this Approval, it must report the information to EPA in writing within twenty-four (24) hours of having or receiving the information.
8. This Approval does not constitute a determination by EPA that the transporters or disposal facilities selected by MIT are authorized to conduct the activities set forth in the Application. MIT is responsible for ensuring that its selected transporters and disposal facilities are authorized to conduct these activities in accordance with all applicable federal, state and local statutes and regulations.
9. MIT shall notify EPA in writing of the scheduled date of commencement of on-site activities at least three (3) business days prior to conducting any work under this Approval.
10. This Approval does not waive or compromise EPA's enforcement and regulatory authority, nor release MIT from any other applicable requirements of federal, state or local law, including those affecting any other contamination.

#### **REMEDIAL and DISPOSAL CONDITIONS**

11. Prior to initiating onsite work under this Approval, MIT shall submit the following information for EPA review and/or approval:
  - a. A certification signed by its selected abatement/remediation contractor, stating that the contractor(s) has read and understands the Application, and agrees to abide by the conditions specified in this Approval;
  - b. A contractor work plan, prepared and submitted by the selected abatement/remediation contractor(s), detailing the procedures that will be employed for remediation of PCB-contaminated materials and for containment and monitoring during remediation activities. This work plan should also include information on waste storage, handling, and disposal for each waste stream type and for equipment decontamination; and,
  - c. A certification signed by the selected analytical laboratory, stating that the laboratory has read and understands the analytical and quality assurance requirements specified in the Application and in this Approval.

12. PCB-contaminated materials shall be decontaminated and confirmatory sampling and analysis shall be conducted as described below:
  - a. PCB caulk, PCB-contaminated caulk, and backer rods (if present) shall be removed as described in the Application.
  - b. PCB-contaminated *porous surfaces* shall be abated as described in the Application using either a chemical wash and/or encapsulation.
    - i. The decontamination standard for building horizontal *porous surfaces* (i.e. balconies) shall be less than or equal to ( $\leq$ ) 1 part per million (ppm) without further controls or restrictions.
      - (1) Post-decontamination verification sampling of horizontal *porous surfaces* shall be performed on a bulk basis (i.e. mg/Kg). Samples shall be collected according to EPA's draft Standard Operating Procedure For Sampling Concrete in the Field, dated 12/30/97 to a maximum depth of 0.5 inches.
      - (2) Chemical extraction for PCBs shall be conducted using Methods 3500B/3540C of SW-846 for solid matrices; and, chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another extraction and/or analytical method(s) is validated according to Subpart Q.
      - (3) If post-decontamination verification sampling indicates an exceedence of the 1 ppm PCB cleanup standard, MIT may conduct additional cleaning to achieve the PCB cleanup standard. In the event the PCB cleanup standard cannot be achieved, an encapsulant/ sealant shall be applied to the *porous surface* and a wooden decking shall be constructed over the area.
    - ii. Initial sampling of **encapsulated** *porous surfaces* shall be performed on a surface area basis by a wipe test (i.e.  $\mu\text{g}/100\text{ cm}^2$ ). Chemical extraction for PCBs shall be conducted using Methods 3500B/3540C of SW-846 and chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another extraction and/or analytical method(s) is validated according to Subpart Q.
      - (1) MIT shall submit an initial sampling plan for EPA's review before initiating work under this Approval. MIT shall incorporate any modifications EPA deems necessary to evaluate the effectiveness of the encapsulation. The initial sampling plan shall include information on the sampling procedures, sampling locations, sampling frequency, and analytical criteria.

- (2) In the event that PCBs at greater than ( $>$ )  $1 \mu\text{g}/100 \text{ cm}^2$  are found in the initial samples, MIT shall apply additional sealant and shall collect subsequent samples to verify that PCBs are less than ( $<$ )  $1 \mu\text{g}/100 \text{ cm}^2$ .
  - (3) In the event that PCB concentrations in the wipe samples are  $> 1 \mu\text{g}/100 \text{ cm}^2$  after application of additional sealant, MIT shall contact EPA for further discussion and direction on abatement alternatives.
- c. The decontamination standard for *non-porous surfaces* (i.e. metal frames) shall be less than or equal to ( $\leq$ )  $10 \mu\text{g}/100 \text{ cm}^2$  PCBs.
- i) Sampling of *non-porous surfaces* shall be performed on a surface area basis by the standard wipe test as specified in 40 CFR § 761.123 (i.e.  $\mu\text{g}/100 \text{ cm}^2$ ).
  - ii) Chemical extraction for PCBs shall be conducted using Methods 3500B/3540C of SW-846 and chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another method(s) is validated according to Subpart Q.
  - iii) For decontaminated *non-porous surfaces* that have PCB concentrations exceeding the decontamination standard, MIT may conduct additional decontamination to achieve the required decontamination standard. In lieu of conducting decontamination, PCB-contaminated *non-porous surfaces* may be disposed of in accordance with § 761.61(b).
- d. The cleanup level for bulk *PCB remediation waste* (i.e. soil) and non-building *porous surfaces* (i.e. asphalt and concrete sidewalks) shall be  $\leq 1$  part per million (ppm).
- i) Bulk *PCB remediation waste* (i.e. soil) samples shall be collected on a bulk basis (i.e. mg/Kg) and reported on a dry-weight basis. Verification sampling shall comply with Subpart O; samples shall be collected from both excavation bottoms and sidewalls, as applicable. MIT shall submit a plan(s) to EPA depicting the soil areas to be remediated and its proposed post-excavation verification sampling plan prior to conducting this work.
  - ii) Post-decontamination verification sampling of *porous surfaces* shall be performed on a bulk basis (i.e. mg/Kg). Samples shall be collected according to EPA's draft Standard Operating Procedure For Sampling Concrete in the Field, dated 12/30/97 to a maximum depth of 0.5 inches.



- iii) Chemical extraction for PCBs shall be conducted using Methods 3500B/3540C of SW-846 for solid matrices; and, chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another extraction and/or analytical method(s) is validated according to Subpart Q.
13. PCB waste (at any concentration) generated as a result of the activities described in the Application, excluding any decontaminated materials, shall be marked in accordance with 40 CFR § 761.40; stored in a manner consistent with 40 CFR § 761.65; and, disposed of in accordance with 40 CFR § 761.61 or § 761.62, unless otherwise specified below.
- a. Non-liquid cleaning materials, PPE and similar materials resulting from decontamination may be disposed of in accordance with 40 CFR § 761.79(g)(6).
  - b. Moveable equipment, tools, and sampling equipment shall be decontaminated in accordance with either 40 CFR § 761.79(b)(3)(i)(A), § 761.79(b)(3)(ii)(A), or § 761.79(c)(2).
  - c. PCB-contaminated water generated during decontamination shall be decontaminated in accordance with 40 CFR § 761.79(b)(1) or disposed of under § 761.70.
14. To the maximum extent practical, engineering controls shall be utilized to minimize the potential for PCB releases during the abatement. In addition, to the maximum extent possible, disposable equipment and materials, including PPE, will be used to reduce the amount of decontamination necessary.

#### **DEED RESTRICTION AND USE CONDITIONS**

15. Within thirty (30) days of completing the activities described in the Application and authorized under the Approval, MIT shall submit for EPA review and approval, a draft deed restriction for the Site. The deed restriction shall include: a description of the extent and levels of contamination at the Site following abatement; a description of the actions taken at the Site; a description of the use restrictions for the Site; and the long-term monitoring and maintenance requirements on the Site. Within seven (7) days of receipt of EPA's approval of the draft deed restriction, MIT shall record the deed restriction. A copy of this Approval shall be attached to the deed restriction.
16. MIT shall notify the EPA of the sale, lease or transfer of any portion of the Site, in writing, no later than thirty (30) days prior to such action. This notification shall include the name, address, and telephone number of the new owner(s). In the event that MIT sells, leases or transfers any portion of the Site, MIT shall continue to be bound by all the terms and conditions of this Approval, unless EPA allocates some or all of this



Approval's responsibilities to the new owner through the issuance of a new approval. The procedures for the issuance of a new approval ("re-issued approval") are as follows:

- a. The new owner(s), lessee or transfer entity must request, in writing, that the EPA issue a new approval to the new owner(s), lessee or transfer entity which transfers some or all responsibilities to comply with the terms and conditions of this Approval to that entity or entities;
  - b. The EPA reviews the request, and determines whether to issue a new approval; and,
  - c. The new owner(s), lessee or transfer entity provides written notification to the EPA of its acceptance of and intention to comply with the terms and conditions of the re-issued approval. The re-issued approval may be withdrawn if the EPA does not receive written notification from the new owner(s), lessee or transfer entity of its acceptance of, and intention to comply with, the terms and conditions of the re-issued approval within thirty (30) days of the date of the re-issued approval. Under such circumstances, all terms and conditions of this Approval will continue to be binding on MIT.
  - d. Notification to EPA as required under Condition 16 shall not be required for the routine leasing of apartment units to current MIT students and their families for housing. Notification to building occupants on the PCBs at the Site should be included in the long-term monitoring and maintenance implementation plan per Condition 19.
17. In the event that the sale, lease or transfer of the Site will involve or result in a change in the use of the Site, EPA may revoke, suspend, and/or modify this Approval or the re-issued approval if it finds, due to the change in use, that this risk-based cleanup and disposal action will not be protective of health or the environment. The new owner shall record any amendment to the deed restriction, resulting from any approved modification(s), within sixty (60) days of such change(s).
18. In any sale, lease or transfer of the Site, MIT shall retain sufficient access rights to enable it to continue to meet its obligations under this Approval for maintenance and monitoring of the coating, except as provided above.

Approval's responsibilities to the new owner through the issuance of a new approval. The procedures for the issuance of a new approval ("re-issued approval") are as follows:

- a. The new owner(s), lessee or transfer entity must request, in writing, that the EPA issue a new approval to the new owner(s), lessee or transfer entity which transfers some or all responsibilities to comply with the terms and conditions of this Approval to that entity or entities;
  - b. The EPA reviews the request, and determines whether to issue a new approval; and,
  - c. The new owner(s), lessee or transfer entity provides written notification to the EPA of its acceptance of and intention to comply with the terms and conditions of the re-issued approval. The re-issued approval may be withdrawn if the EPA does not receive written notification from the new owner(s), lessee or transfer entity of its acceptance of, and intention to comply with, the terms and conditions of the re-issued approval within thirty (30) days of the date of the re-issued approval. Under such circumstances, all terms and conditions of this Approval will continue to be binding on MIT.
  - d. Notification to EPA as required under Condition 16 shall not be required for the routine leasing of apartment units to current MIT students and their families for housing. Notification to building occupants on the PCBs at the Site should be included in the long-term monitoring and maintenance implementation plan per Condition 19.
17. In the event that the sale, lease or transfer of the Site will involve or result in a change in the use of the Site, EPA may revoke, suspend, and/or modify this Approval or the re-issued approval if it finds, due to the change in use, that this risk-based cleanup and disposal action will not be protective of health or the environment. The new owner shall record any amendment to the deed restriction, resulting from any approved modification(s), within sixty (60) days of such change(s).
18. In any sale, lease or transfer of the Site, MIT shall retain sufficient access rights to enable it to continue to meet its obligations under this Approval for maintenance and monitoring of the coating, except as provided above.

**INSPECTION, MONITORING, MODIFICATION AND REVOCATION CONDITIONS**

19. Within thirty (60) days of receipt of this Approval, MIT shall submit for EPA's review and approval, the following:
  - a. A detailed long-term monitoring and maintenance implementation plan (MMIP) for the surface sealant. MIT shall incorporate any changes to the MMIP required by EPA.
    - i) The MMIP shall include: a description of the activities that will be conducted, including inspection criteria, frequency, and routine maintenance activities; sampling protocols, sampling frequency, and analytical criteria; reporting requirements; and, corrective measures that will be implemented if the  $1 \mu\text{g}/100 \text{ cm}^2$  surface standard is exceeded.
    - ii) The MMIP shall include a communications component which details how the maintenance and monitoring results will be communicated to the Site users, including apartment occupants, on-site workers, and other interested stakeholders.
    - iii) The MMIP also shall include a worker training component for maintenance workers or for any person that will be conducting work that could impact the building sealant.
    - iv) MIT shall submit the results of these long-term monitoring and maintenance activities to EPA. Based on its review of the results, EPA may determine that modification to the MMIP is necessary in order to monitor and/or evaluate the long-term effectiveness of the sealant.
    - v) Activities required under the MMIP shall be conducted until such time that EPA determines, in writing, that such activities are no longer necessary.
  - b. An apartment cleaning plan, which shall include: areas proposed for cleaning, cleanup standards, sampling protocols, analytical criteria, and reporting requirements.
20. Any modification(s) in the plan, specifications, or information submitted by MIT, contained in the Application, and forming the basis upon which this Approval has been issued, must receive prior written approval from the EPA. MIT shall inform the EPA of any modification, in writing, at least ten (10) days prior to such change. No action may be taken to implement any such modification unless the EPA has approved of the modification, in writing. The EPA may request additional information in order to determine whether to approve the modification.

If such modification involves a change in the use of the Site which results in exposures not considered in the Application, the EPA may revoke, suspend, and/or modify this Approval upon finding that this risk-based cleanup and disposal action may pose an unreasonable risk of injury to health or the environment due to the change in use. EPA may take similar action if the EPA does not receive requested information needed from MIT to make a determination regarding potential risk.

21. Any departure from the conditions of this Approval without prior, written authorization from the EPA may result in the revocation, suspension and/or modification of the Approval, in addition to any other legal or equitable relief or remedy the EPA may choose to pursue.
22. Any misrepresentation or omission of any material fact in the Application or in any future records or reports may result in the EPA's revocation, suspension and/or modification of the Approval, in addition to any other legal or equitable relief or remedy the EPA may choose to pursue.
23. Approval for these activities may be revoked, modified or otherwise altered: if EPA finds a violation of the conditions of this Approval or of 40 CFR Part 761, including EPA's PCB Spill Cleanup Policy, or other applicable rules and regulations; if EPA finds that these activities present an unreasonable risk to public health or the environment; if EPA finds that there is migration of PCBs from the Site; or if EPA finds that changes are necessary to comply with new rules, standards, or guidance for such approvals. MIT may apply for appropriate modifications in the event new rules, standards, or guidance come into effect.
24. MIT shall allow any authorized representative of the Administrator of the EPA to inspect the Site and to inspect records and take samples as may be necessary to determine compliance with the PCB regulations and this Approval. Any refusal by MIT to allow such an inspection (as authorized by Section 11 of TSCA) shall be grounds for revocation of this Approval.

#### **RECORDKEEPING AND REPORTING CONDITIONS**

25. MIT shall prepare and maintain all records and documents required by 40 CFR Part 761, including, but not limited to, the records required by Subparts J and K. MIT shall maintain a written record of the cleanup and the analytical sampling for activities conducted under this Approval at the Site. All records shall be made available for inspection by authorized representatives of the EPA, until such time as EPA approves in writing a request for an alternative disposition of such records.



26. MIT shall submit a Final Completion Report (Report) to the EPA within 120 days of completion of the activities described under this Approval. At a minimum, this Report shall include: a discussion of the project activities; characterization and verification sampling analytical results; copies of the accompanying analytical chains of custody; field and laboratory quality control/quality assurance checks; an estimate of the quantity of PCBs removed and disposed off-site; copies of manifests; and, copies of certificates of disposal or similar certifications issued by the disposer, if applicable. The Report shall also include a copy of the recorded deed restriction and a certification signed by a MIT official verifying that the authorized activities have been implemented in accordance with this Approval and the Application.
27. As required under Condition 19 of this Approval, MIT shall submit the results of the long-term monitoring and maintenance activities to EPA as specified in the final MMIP to be approved by EPA.
28. Required submittals shall be mailed to:  
  
Kimberly N. Tisa, PCB Coordinator  
United States Environmental Protection Agency  
1 Congress Street, Suite 1100 - CPT  
Boston, Massachusetts 02114-2023  
Telephone: (617) 918-1527  
Facsimile: (617) 918-0527
29. No record, report or communication required under this Approval shall qualify as a self-audit or voluntary disclosure under EPA audit, self disclosure or penalty policies.

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**END OF ATTACHMENT 1**